

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Currently Amended)

A three-dimensional wire-woven truss-type cellular light structure formed of six groups of orientational-continuous-wires intercrossed with each other at angles of 60 degrees or 120 degrees ~~of angles~~ in a three-dimensional space, the cellular light structure comprising a plurality of unit cells, ~~[[a]]~~ each unit cell of the cellular light structure comprising:

a) a first regular tetrahedron member formed of ~~[[a]]~~ first to sixth wires, the first regular tetrahedron member being constructed in such a manner that the first wire, the second wire, and the third wire are intercrossed in a plane, ~~to form an equilateral triangle~~; the fourth wire is intercrossed with the intersection point of the second wire and the third wire, the fifth wire is intercrossed with the intersection point of the first wire and the second wire, and the sixth wire is intercrossed with the intersection point of the third wire and the first wire, the fourth wire, the fifth wire, and the sixth wire being intercrossed with one another at a single reference intersection point, ~~at which~~ each side ~~[[is]]~~ of the first regular tetrahedron member being equilateral; and

b) a second regular tetrahedron member ~~contacted with~~ contacting the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member, the second regular tetrahedron member being constructed in such a manner that the fourth wire, the fifth wire, and the sixth wire pass the reference intersection point and extend further, each of a group of three wires ~~[[is]]~~ being intercrossed with ~~two wires~~ one wire selected from the extended fourth, fifth and sixth wires and with another wire of the group of three wires so that each side of the second regular tetrahedron member is equilateral, the group of three wires being ~~[[in]]~~ parallel ~~with~~ to the first wire, the second wire, and the third wire respectively;

c) wherein the wires are intercrossed with each other at 60 degrees or 120 degrees, each of the ~~[[six]]~~ wires ~~having a compound curve between each of the intersections of the first to the~~

~~sixth wires, the compound curve comprising a first curve in one direction and a second curve in an opposite direction and that alternates relative to the first curve at the intersection of the wires, and being curved in a first direction at a first intersection with a first group of two other wires and being curved in a second direction, which is opposite to the first direction, at a second intersection with a second group of two other wires, the second intersection being adjacent to the first intersection, the unit cell [[is]] being repeated to form the plurality of unit cells in a three-dimensional pattern, thereby forming a wire-woven truss-type structure.~~

Claim 2 (Currently Amended)

A cellular light structure according to claim 1, wherein, among the six groups of orientational-wires, three wires, which are each a member of a respective one of three groups of orientational-wires forming and which form a vertex of the first or second regular tetrahedron member, are intercrossed clockwise or counterclockwise when seen from the front of the vertex.

Claim 3 (Original)

A cellular light structure according to claim 1, wherein the first and second regular tetrahedron members have a similarity ratio of 1:1.

Claim 4 (Original)

A cellular light structure according to claim 1, wherein the first and second regular tetrahedron members have a ratio of similarity in the range of 1:1 to 1:10.

Claim 5 (Original)

A cellular light structure according to claim 1, wherein the wires are any one selected from the group consisting of metal, ceramics, synthetic resin, and fiber-reinforced synthetic resin.

Claim 6 (Canceled)

Claim 7 (Currently Amended)

A reinforced composite material manufactured by filling with a resin, a ceramic or a metal the empty space of the three-dimensional wire-woven truss-type cellular light structure according to claim 1.

Claim 8 (Currently Amended)

A reinforced composite material manufactured by filling with a resin, a ceramic or a metal the empty space of a smaller regular tetrahedron member among the first and second regular tetrahedron members, which constitutes a unit cell of ~~[[the]]~~ a three-dimensional wire-woven truss-type cellular light structure ~~according to claim 4~~ formed of six groups of orientational-continuous-wires intercrossed with each other at angles of 60 degrees or 120 degrees in a three-dimensional space, a unit cell of the cellular light structure comprising:

a) a first regular tetrahedron member formed of first to sixth wires, the first regular tetrahedron member being constructed in such a manner that the first wire, the second wire, and the third wire are intercrossed in a plane, the fourth wire is intercrossed with the intersection point of the second wire and the third wire, the fifth wire is intercrossed with the intersection point of the first wire and the second wire, and the sixth wire is intercrossed with the intersection point of the third wire and the first wire, the fourth wire, the fifth wire, and the sixth wire being intercrossed with one another at a single reference intersection point, each side of the first regular tetrahedron member being equilateral; and

b) a second regular tetrahedron member contacting the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member, the second regular tetrahedron member being constructed in such a manner that the fourth wire, the fifth wire, and the sixth wire pass the reference intersection point and extend further, each of a group of three wires being intercrossed with one wire selected from the extended fourth, fifth and sixth wires and with another wire of the group of three wires so that each side of the second regular tetrahedron member is equilateral, the group of three wires being parallel to the first wire, the second wire, and the third wire respectively;

c) wherein the wires are intercrossed with each other at 60 degrees or 120 degrees, and the unit cell is repeated in a three-dimensional pattern; and

d) wherein the first and second regular tetrahedron members have a ratio of similarity in the range of 1:1 to 1:10.

Claim 9 (Currently Amended)

A method of fabricating a three-dimensional wire-woven truss-type cellular light structure formed of six groups of orientational-continuous-wires intercrossed with each other at angles of 60 degrees or 120 degrees ~~of angles~~ in a three-dimensional space, the method comprising steps of:

a) forming an equilateral triangle by intercrossing a first wire, a second wire, and a third wire in a plane ~~so that each side is equilateral;~~

b) forming a first regular tetrahedron member by intercrossing a fourth wire with the second wire and the third wire, intercrossing a fifth wire with the first wire and the second wire, intercrossing a sixth wire with the third wire and the first wire, and intercrossing the fourth wire, the fifth wire, and the sixth wire ~~through~~ at a single reference intersection point, ~~at which each side~~ of the first regular tetrahedron member being equilateral;

c) forming a second regular tetrahedron member ~~contacted with~~ contacting the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member by passing and extending the fourth wire, the fifth wire, and the sixth wire through the reference intersection point, and intercrossing each of a group of three wires with ~~two wires~~ one wire selected from the extended fourth, fifth and sixth wires and with another wire of the group of three wires so that each side of the second regular tetrahedron member is equilateral, the group of three wires being parallel ~~with~~ to the first wire, the second wire, and the third wire respectively; and

d) repeatedly forming the first and second regular tetrahedron member to thereby form a ~~wire-woven truss-type~~ the cellular light structure wherein each of the ~~[[six]]~~ wires ~~have a compound curve between each of the intersections of the first to the sixth wires, the compound curve comprising a first curve in one direction and a second curve in an opposite direction and~~

that alternates relative to the first curve at the intersection of the wires is curved in a first direction at a first intersection with a first group of two other wires and is curved in a second direction, which is opposite to the first direction, at a second intersection with a second group of two other wires, the second intersection being adjacent to the first intersection.

Claim 10 (Currently Amended)

A method according to claim 9, wherein, among the six groups of orientational-wires, three wires, which are each a member of a respective one of three groups of orientational-wire forming and which form a vertex of the first or second regular tetrahedron member, are intercrossed clockwise or counterclockwise when seen from the front of the vertex.

Claim 11 (Original)

A method according to claim 9, wherein the first and second regular tetrahedron members have a similarity ratio of 1:1.

Claim 12 (Original)

A method according to claim 9, wherein the first and second regular tetrahedron members have a ratio of similarity in the range of 1:1 to 1:10.

Claim 13 (Original)

A method according to claim 9, wherein the wires are any one selected from the group consisting of metal, ceramics, synthetic resin, and fiber-reinforced synthetic resin.

Claim 14 (Canceled)

Claim 15 (Currently Amended)

A method of manufacturing a reinforced composite material by filling with a resin, a ceramic or a metal the empty space of a three-dimensional wire-woven truss-type cellular light structure manufactured according to the method of claim 9.

Claim 16 (Currently Amended)

A method of manufacturing a reinforced composite material by filling with a resin, a ceramic or a metal the empty space of a smaller regular tetrahedron member among [[the]] first and second regular tetrahedron members, which constitutes a unit cell of a three-dimensional wire-woven truss-type cellular light structure, ~~manufactured according to claim 12~~ formed of six groups of orientational-continuous-wires intercrossed with each other at angles of 60 degrees or 120 degrees in a three-dimensional space, fabricated by a method comprising steps of:

a) forming an equilateral triangle by intercrossing a first wire, a second wire, and a third wire in a plane;

b) forming a first regular tetrahedron member by intercrossing a fourth wire with the second wire and the third wire, intercrossing a fifth wire with the first wire and the second wire, intercrossing a sixth wire with the third wire and the first wire, and intercrossing the fourth wire, the fifth wire, and the sixth wire at a single reference intersection point, each side of the first regular tetrahedron member being equilateral;

c) forming a second regular tetrahedron member contacting the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron member by passing and extending the fourth wire, the fifth wire, and the sixth wire through the reference intersection point, and intercrossing each of a group of three wires with one wire selected from the extended fourth, fifth and sixth wires and with another wire of the group of three wires so that each side of the second regular tetrahedron member is equilateral, the group of three wires being parallel to the first wire, the second wire, and the third wire respectively; and

d) repeatedly forming the first and second regular tetrahedron member to thereby form a truss-type structure;

wherein the first and second regular tetrahedron members have a ratio of similarity in the range of 1:1 to 1:10.